



LAB ACTIVITY: AIR TRAPPED IN ICE

The ice of Antarctica and other places around the globe is a storehouse of change over a long period in Earth's history. This ice forms from the snow that falls each year on glaciers and ice caps, thaws in the sun, reforms and then freezes. As it freezes, bubbles of gas from the air are trapped in the ice. If those bubbles are recovered, removed and analyzed, they provide useable samples of the ancient air. When scientists realized that this information was available to them, they began drilling into glaciers and ice caps to bring samples back for study. Once at the laboratory, the samples reveal the chemical composition and climate conditions of the past. One of the longest continuous records of the ancient atmosphere comes from an ice core drilled by a team of French-Russian scientists on the Antarctic Ice Sheet; its span covered 160,000 years. These core samples are kept at the [National Ice Core Laboratory](#) in Denver, CO.

PART I: OBSERVATIONS

Student Sheet 2

PART 2: APPLICATION



PART 3: ANALYSIS

1. What did you see when you looked at the ice cube with the hand lens the first time?
2. What happened when you placed the ice cube over the hot water?
3. What did you observe happening to the air bubbles as the ice melted?
4. How do you think the air got into the ice?
5. How does the air trapped in the ice cube compare to air trapped in the ice of a glacier?
6. How might air trapped in an ice cube be "captured" so that it doesn't mix with fresh air?
7. How would the age of the air from the ice cube compare to the age of the air trapped in a glacier?